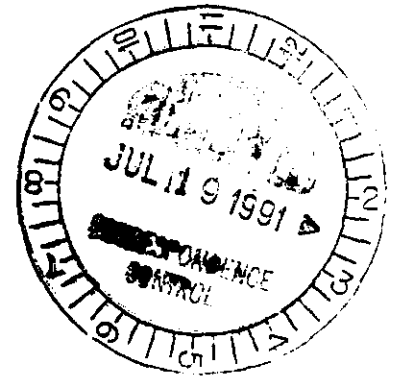




June 28, 1991



Robert K. Stewart
Unit Manager
U.S. Department of Energy
P.O. Box 550 A6-95
Richland, Washington 99352

Re: Review Comments on 1100-EM-1 RI Phase 2 Work Plan and
FS 1 and 2 Report

Dear Mr. Stewart:

The U.S. Environmental Protection Agency (EPA) and the Washington State Department of Ecology (Ecology) have reviewed the subject documents. Enclosed are our combined comments. Two types of comments are included, both general comments and specific comments. The general comments should be considered in revising the documents but do not require specific responses. Responses to the specific comments and revised documents are expected within thirty (30) days, or by July 29, 1991.

If you have questions on any of the above, please contact me at (509) 376-3883.

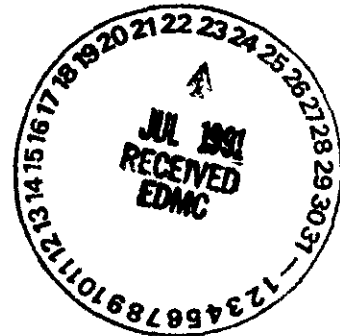
Sincerely,

David R. Einan
Unit Manager

Enclosure

cc: (with enclosure)

R. Hibbard, Ecology
D. Lacombe, PRC
W. Staubitz, USGS
J. Stewart, USACE
T. Veneziano, WHC
Administrative Record -- 1100-EM-1 Operable Unit



COMMENTS ON THE
REMEDIAL INVESTIGATION PHASE II SUPPLEMENTAL
WORK PLAN FOR THE HANFORD SITE
1100-EM-1 OPERABLE UNIT

GENERAL

1. **Deficiency:** Section 2.1, p. 2-3, third paragraph

The text does not include a reference to the additional groundwater sampling results. Before a conclusion can be drawn to support no further action, this data must be evaluated and agreed upon by the regulators.

Recommendation:

Expand this section to reference the most recent rounds of groundwater sampling results.

2. **Deficiency:** Section 2.1, p. 2-3, fifth paragraph

The statement about precipitation is false and misleading. The seasons with the greatest amount of precipitation do not coincide with the seasons of high evaporation.

Recommendation:

Rewrite this section to indicate that precipitation events are predominantly short in duration, but occasionally contain heavy rainfall.

3. **Deficiency:** Section 2.2.1, p. 2-6, last paragraph

Specific references to the contamination listed in this section are required to back up this statement.

Recommendation:

Revise the text to include a reference (e.g., the JUB Report) to the discharge of nitrate, fluoride, sulfate, ammonia, gross-alpha, and gross-beta contamination.

4. **Deficiency:** Section 2.2.2, p. 2-6

Specific references to the contamination listed in this section are required to back up this statement.

Recommendation:

Revise the text to include the data or a reference to problems associated with the air quality data.

5. **Deficiency:** Section 2.2.3, p. 2-6, first paragraph

MTCA, Chapter 173-340-740(6)(c), describes surficial soil that is available for direct contact to be at depths of 15 feet. Future uses of this site could include excavation for footings and basements. Workers could be exposed to these contaminants during activities and, therefore, must be protected from potential contamination.

Recommendation

Revise the text to identify the 15 foot requirement.

6. **Deficiency/Recommendation:** Section 2.2.3, p. 2-6, first paragraph

This section must state that these conclusions are from DOE-RL 1990 and are under review.

7. **Deficiency:** Section 2.2.4, p. 2-8, first paragraph

The reference to contamination is incomplete.

Recommendation

Provide a reference to the location of the types of contamination listed in this paragraph.

8. **Deficiency/Recommendation:** Section 2.4, p. 2-9, first paragraph

Add a sentence after the first sentence that states that the assessment in Section 6 of DOE-RL 1990 is presently under review.

9. **Deficiency:** Section 2.4.1, p. 2-9

This section is lacking a discussion of the residential scenario. Future land uses of this property could include people living on or adjacent to this site. Property adjacent to this operable unit includes agricultural (potatoes and alfalfa) within one quarter to one half mile radius; residential homes within one half mile radius; and the Richland well field is within one mile of contaminated subunits. WAC 173-740-745 states that:

- (b) Cleanup levels shall not be based on industrial site use unless the following can be demonstrated:
- (ii) The site is currently used for industrial purposes or has a history of use for industrial purposes.
 - (iii) Adjacent properties are currently used or designated for use for industrial purposes.
 - (iv) The site is expected to be used for industrial purposes for the foreseeable future due to site zoning, statutory or regulatory restrictions, comprehensive plans, adjacent land use, and other relevant factors.

The person undertaking the cleanup action must demonstrate that it is appropriate to use industrial cleanup levels. Ecology does not agree with the rationale that this site poses no risk to human health or the environment.

Recommendation: Revise the text to discuss the potential risks associated with a residential scenario.

10. **Comment:** Table 4-1, p. 4-8

Monitoring well MW-18 is not shown on figure 4-1.

Recommendation

Change the title of the figure to read: "Monitoring Well Locations" and show MW-18.

11. **Deficiency:** Section 4.2.3, p. 4-10

All horizontal and vertical control should be surveyed in using the standard control parameters. Vertical control should be within .01 feet and include the NGVD of 1929 until it is superseded by another datum. Horizontal coordinates should be NAD of 1983. Hanford coordinates are not acceptable and should not be used.

Recommendation

Revise the text to indicate that NGVD 1929 and NAD 1983 will be used.

12. **Deficiency:** Section 4.5.2., p. 4-23

Determination at the oxidation state of chromium found is no longer mentioned.

Recommendation

Reinstate the task or explain why it was deleted.

13. **Comment:** Section 4.5.3.7, p. 4-35, second paragraph

This paragraph is entitled sample location, frequency, and analysis, however, analysis is discussed in section 4.5.3.8.

Recommendation

Revise the title to read "Sample Location, Frequency".

INTRODUCTION

COMMENTS ON NEW MATERIAL

GENERAL COMMENTS

Overall, most of the comments are addressed and incorporated into draft B of the feasibility study. Most of the comments that are not addressed are those dealing with issues that remain to be resolved, such as future land use and contaminant screening. However, the DOE has agreed to perform a residential scenario baseline risk assessment for the 1100-EM-1 operable unit; specifics regarding the residential scenario are currently under negotiation.

Sections 2.2.1 and 2.2.3.1 do not provide a clear explanation of development of remedial action goals and cleanup levels. The report states that the remedial action objectives are based on the National Contingency Plan requirement of an acceptable overall risk of not more than 10^{-6} . The cumulative risk at the 1100-EM-1 Operable Unit is presented as 2×10^{-6} . The report states that the cleanup levels for soil are calculated using method C of the Washington State Model Toxics Control Act (MTCA). This method (as shown in Appendix C of the feasibility study) uses a target risk of 10^{-5} to calculate cleanup levels. A recent directive from the EPA (OSWER Directive 9355.0-30) suggests that no remedial action should generally be implemented if the cumulative carcinogenic risk is less than 10^{-4} and the hazard quotient is less than 1. Based on the data presented, remedial action would not be required at this operable unit under this directive. However, under this directive, remediation may be warranted when a chemical-specific applicable or relevant and appropriate requirement (ARAR) is exceeded. The feasibility study report correctly identifies MTCA as an ARAR for polychlorinated biphenyl (PCB) remediation. This rationale for developing the cleanup levels should be included. (The assumed industrial scenario is currently in negotiation.)

SPECIFIC COMMENTS

1. Deficiency/Recommendation: Section 1.2.4, p. 1-11

This section should mention the various exposure pathways that will be used in the residential risk assessment.

2. Comment: Section 1.2.5.1, p. 1-12, second paragraph

This paragraph states that three chemicals of aquatic concern were identified, however, only two are listed. Please list the third chemical of aquatic concern.

3. **Deficiency/Recommendation:** Section 2.2.1, p. 2-12

The conclusion of the RI Phase I report are under review and this caveat must be included in this section.

4. **Deficiency/Recommendation:** Section 2.2.3.1, p. 2-4

Residential soil cleanup levels will need to be calculated after residential risk estimates have been determined and the contaminants contributing to those risk estimates have been identified. This section should state that MTCA will be used to determine residential soil cleanup levels upon completion of the residential risk assessment. These cleanup levels will provide valuable information to the operable unit decision makers.

5. **Deficiency:** Section 2.2.3.1, p. 2-4, first paragraph

USDOE is assuming that future use of the 1100 Area is to be industrial. This has not been negotiated with EPA and Ecology. Future land use of the Hanford Reservation has not been decided. Property adjacent to this operable unit includes agricultural (potatoes and alfalfa) within one quarter to one half mile radius; residential homes within one half mile radius; and the Richland well field is within one mile of contaminated subunits. WAC 173-740-745 states that:

- (b) Cleanup levels shall not be based on industrial site use unless the following can be demonstrated:
 - (ii) The site is currently used for industrial purposes or has a history of use for industrial purposes.
 - (iii) Adjacent properties are currently used or designated for use for industrial purposes.
 - (iv) The site is expected to be used for industrial purposes for the foreseeable future due to site zoning, statutory or regulatory restrictions, comprehensive plans, adjacent land use, and other relevant factors.

The person undertaking the cleanup action must demonstrate that it is appropriate to use industrial cleanup levels. No rationale that industrial cleanup levels are warranted at the 1100-EM-1 Operable Unit has been presented.

Recommendation:

Revise the text to identify the assumption and that cleanup levels are subject to change.

6. **Deficiency:** Section 2.2.3.1, p. 2-6, second paragraph

We do not agree that the ephemeral pool is a candidate for remedial action.

Recommendation: Revise the text to include the ephemeral pool for remediation.

7. **Deficiency:** Section 2.3.2.1, p. 2-9 and Section 3.3.2.3.3, p. 3-14
For remediation of PCBs at the Horn Rapids Landfill, excavation to a depth of 10 feet (3 meters) is assumed. In draft A of this feasibility study a depth of excavation of 6.5 feet (2 meters) was assumed. This depth was based on excavating the soils to the background upper tolerance limit (UTL) of 1,510 $\mu\text{g/kg}$ for total PCB congeners. A comment by EPA (comment number 6) recommends an excavation depth of 21.3 feet based on a UTL of 170 $\mu\text{g/kg}$ (0.17 mg/kg) for Aroclor-1248.

Appendix C provides the PCB concentrations with depth for borehole HRL-4, the apparent basis for choosing 10 feet as the depth of excavation. Several inconsistencies are apparent. All calculations presented in Appendix C still use 6.5 feet as a basis for volume determination. Table 2 of draft B recommends a cleanup level of 10 mg/kg (10,000 $\mu\text{g/kg}$) for PCBs at the Horn Rapids Landfill. Based on the PCB concentrations in borehole HRL-4, the concentration of PCBs at 10 feet would be approximately 900 $\mu\text{g/kg}$ (0.9 mg/kg). This concentration is inconsistent with the proposed remediation goal.

Recommendation:

The conflicts between the suggested cleanup goal (10 mg/kg), the assumed concentration at 10 feet (0.9 mg/kg), and the EPA-recommended remediation goal (0.17 mg/kg) for Aroclor-1248 should be resolved.

8. **Comment:** Table 2-3, p. 2-12

It is not clear why ISV is rejected. ISV has been selected as a remediation technology in other places in the State of Washington for similar contaminants.

9. **Deficiency:** Section 2.4.3.3.3, p. 2-16

The text states that stabilization/fixation will reduce the leachability of PCBs. PCBs are not readily leached with water as a solvent.

Recommendation:

The text should be revised to state that fixation/stabilization will reduce the possibility of ingestion and inhalation of soil particles contaminated with PCBs.

10. **Comment:** Section 2.4.3.3.4, p. 2-16

Second-third Land disposal reference is incorrectly listed. It should be 40 CFR 268.34, not 40 CFR 238.38.

11. **Deficiency:** Section 3.1, p. 3-1, first paragraph

The first level of screening criterial should include the ability to protect human health and the environment and compliance with ARARs. The second step should include long term effectiveness and permanence; reduction in toxicity, mobility, or volume through treatment; short term effectiveness; and implementability; and cost. The last step should include state acceptance and community acceptance.

Recommendation

Rewrite this section to consider technical implementability and cost as a second layer of analysis.

12. **Deficiency:** Section 3.3, p. 3-5, first paragraph

See comment 11 above.

Recommendation

Rewrite this section to consider protection of human health and the environment and compliance with ARARs. Implementability and cost should not be used as the primary screening criterial for the selection of soil remediation alternatives.

13. **Comment:** Section 3.3.2.1.2, p. 3-10, second paragraph

It is important to identify the frequency and likelihood of the Richland well field might deviate from normal operating procedures. This evaluation is necessary to determine the practicality of the no action alternative.

14. **Comment:** Section 3.3.2.2.1, p. 3-12, second paragraph

It is important to identify the frequency and likelihood of the Richland well field might deviate from normal operating procedures. This evaluation is necessary to determine the practicality of the institutional controls alternative.

16. **Deficiency/Recommendation:** Appendix A, Item 1.9

This document is a guidance document and not a promulgated regulation; therefore it is a "to-be-considered" guideline and not an ARAR.

17. **Deficiency:** Apendix A, Table A-1, chemical specific ARARs number 1.10

The applicable chemical specific ARAR for soil remediation may be WAC 173-340-740.

Recommendation

Footnote this ARAR to include that it is based on an assumption as comment 5.

18. Deficiency/Recommendation: Section 4.5, p. 4-2
This section should discuss the inclusion of the residential risk assessment.

INCORPORATION OF PREVIOUS COMMENTS ON DRAFT A

Most comments were incorporated into this draft of the feasibility study with the exception of those identified below. In addition, several comments no longer apply since, several remedial alternatives and remedial actions were eliminated.

General Comments The preliminary toxicity screening performed during the remedial investigation is currently under examination. If it is determined that the screening is inappropriate, then contaminants other than those listed in Section 1.2.3, Nature and Extent of Contamination, should be added to the baseline risk assessment. Section 4.5, Baseline Risk Assessment Refinement, provides for the inclusion of additional contaminants of concern, if necessary. However, Section 1.2.3 should also mention that other contaminants may be of concern.

Comment 4 The table in question has been removed. The text (Section 1.2.5.1, p. 1-13) states that the risk from the ephemeral pool is 4×10^{-7} (compared to 5×10^{-8} in draft A). The calculations for this risk value should be included.

Comment 5 The table in question is completely revised. Action levels were calculated using method C of MTCA, and the scenario is assumed to be industrial.

Comment 15 The comment is partially addressed. The text acknowledges that bis-ethylhexyl-phthalate (BEHP) cannot be treated by dechlorination. However, the text should also explain how dechlorination is readily implementable at full scale for the treatment of PCBs.

Comment 53 This comment is partially addressed. The combined chronic exposure from drinking water and fish ingestion of 7.9×10^{-5} $\mu\text{g/L}$ should also be included.

CORRESPONDENCE DISTRIBUTION COVERSHEET

*Reissue

Author	Addressee	Correspondence No.
DR Einan, EPA	RK Stewart, RL	Incoming: 9102894

Subject: REVIEW COMMENTS ON 1100-EM-1 RI PHASE 2 WORK PLAN AND
FS 1 AND 2 REPORT

INTERNAL DISTRIBUTION

Approval	Date	Name	Location	w/att
		Correspondence Control	A3-01	X
		President's Office	B3-04	
		M. R. Adams	H4-55	X
		B. A. Austin	B2-14	X
		R. J. Bliss (Level 1)	B3-04	X
		L. C. Brown	H4-51	X
		W. T. Dixon	B2-35	X
		C. J. Geier	B2-19	X
		V. W. Hall	L4-88	X
		H. E. Harmon	R2-52	X
		K. L. Hoewing	B3-06	X
		J. O. Honeyman	B1-31	X
		K. R. Jordan	B3-51	X
		M. K. Korenko	B3-08	X
		R. E. Lerch, Assignee	B2-35	X
		H. E. McGuire	B2-35	X
		T. B. Veneziano	B2-35	X
		T. M. Wintczak	L4-92	X
		R. D. Wojtasek	L4-92	X
		EDMC	H4-22	X

*Reissue to clarify letter number. (Number was correct on the coversheet, but wrong on the letter).
Reissue of letter only.

